CORRECTION

This sheet to be substituted for page 447 of the December issue, 1908.

THE FRANKLIN INSTITUTE.

Ballentine's Process of Testing the Hardness and Density of Metals.

[*The Report of the Franklin Institute, through its Committee on Science and the Arts, on the Process of Testing the Hardness and Density of Metals and other Materials, devised by William I. Ballentine, of Chicago, Ill. Sub-Committee: G. H. Clamer, Chairman; A. E. Outerbridge, Jr., A. W. Allen.*]

[No. 2417.]

Before discussing this process for testing the hardness and density of metals, and other materials, it would perhaps be well to understand exactly what is meant by "Hardness." "Hardness" is that property of material which resists a change in the relative position of the molecules of the material without separating them from each other. "Hardness" may therefore be tested and recorded as "the resistance to indentation."

Quite a number of methods of testing hardness have been proposed, some of which are at present in use, the following being those which are most prominent:

1st.—Prof. Turner's method, which depends upon the weight in grams required to cause a diamond to scratch a polished surface.

2d.—The Drill test, proposed by Chas. A. Bauer, the principle involved being that with a drill running at a constant speed with a constant load, the hardness is proportionate to the number of revolutions made by the drill, and the depth of the penetration.

3rd.—The method proposed by Mr. Keep. Mr. Keep devised a machine on the same principle as that involved in the Bauer test,